Web-Based Medication Reference Database for Researchers

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Clinical research involving medications is constrained by the lack of a standard medication coding system. A web-based medication reference database has been developed by the Slone Epidemiology Unit. The database consists of over 22,000 product references of both over-the-counter medications and prescription medications. This medication reference system is used to code the drug exposure of subjects in clinical research conducted by the Slone Epidemiology Unit throughout the world. The coding system allows the analysis of exposures to specific drug components, therapeutic classes, and ad-hoc coalitions of drugs of specific interest.

The Web server is run using NCSA's HTTPD server software. It supports Common Gateway Interface (CGI) scripting as well as user and password protection of documents.

CGI scripts were developed to create a hypertext information system for both searching and cross-indexing medication codes and information. The system enables the rapid display of all products containing a specific component or belonging to a specific therapeutic class. Searching by drug code, product name, drug sequence number, drug component, drug coalition, and therapeutic class are available. All drug codes are hyperlinked to more detailed information concerning its components, therapeutic class and coalitions.

The database consists of 4 relational tables: the product name table, the component table, the therapeutic class table, and the coalition table. The primary table is the product name table. Each row consists of 3 fields: the drug code, product name, and sequence number. When new medications are encountered during interviews, a new unique sequence number is generated. A drug code based on the unique combination of ingredients is then assigned after research by the pharmacist. Neither the drug code or sequence number is ever reassigned even if the drug product is discontinued. If the drug code is a multiple component drug, further entries are added to the component table. The therapeutic class table contains all single component drug codes and their corresponding therapeutic class code. The component table contains the components of all multiple component drugs. The coalition table is a study specific grouping of drug codes. The oral contraceptive coalition is one example of such a coalition. Together these four tables allow for the extensive cross-indexing of components, therapeutic classes, and study-specific coalitions.

One of the major benefits of placing this database on a Web server is the cross-platform support this approach permits. Authorized users on any computer with a Web browser connected to the Internet can access the database. Developing custom database search software for various computer platforms is no longer required. Users only require a computer with an Internet browser. The Web based system significantly reduced technical support requirements for both development and installation.

When new medications are identified, the medication reference database can be dynamically updated on the web. Researchers throughout the world always have the most up-to-date medication reference information available to them. Researchers' wait for obtaining new on-line drug codes is significantly reduced. The previous system required the overhead of distributing incremental updates of the database to all drug coding centers.

In summary, the Web-based Medication Reference System significantly reduces technical support while speeding up the distribution of up-to-date information regarding drug coding to epidemiologists and medical researchers.

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